

or the rheumatic diathesis, and valvular disease of the heart has given rise to much discussion, and to the advancement of many theories. Dr. Mitchell has frequently at his clinics expressed the opinion that chorea and the rheumatism of childhood are of kindred parentage; in other words, the former is simply another expression of the causes which give rise to the latter, and though he does not deny that the disease is sometimes intimately related to heart disease through embolism, he still believes that the majority of cases are not all connected with such a pathological condition. A seemingly strong objection to this view is, that in most of the fatal cases where examinations have been made, vegetations have been found upon the valves of the heart. But in opposition to this it may be urged that possibly the cases associated with vegetations are the ones most likely to end fatally.

The doctrine of embolism as a cause of chorea was first announced by Kirkes, who held that whenever an association between chorea and rheumatism was found to exist, there had been an inflammation of the valves of the heart, and the association was not between chorea and rheumatism, but between chorea and valvular disease of the heart. That is to say, that vegetations formed upon the valves as a result of inflammation, and becoming detached, were washed into the general circulation, causing an irritation of the nerve centres. Dr. Kirkes did not attempt to localize the seat of the lesion, as has since been done by Dr. Hughlings Jackson, who, accepting the theory of embolism, maintains that it is the nerve tissue about the corpus striatum which is rendered unstable by plugging of the smaller branches of the middle cerebral artery. Dr. Jackson also insists upon a distinction being made between instability of nerve tissue and destruction of function; the result of the former being disorderly movements, and of the latter paralysis. This really places chorea on the border-land of paralysis, and the frequent mingling of both conditions unquestionably gives much support to the view.

*Season of Year.*—In my first paper, I stated that Dr. Mitchell had called attention to the fact that chorea, as it occurs in Philadelphia at least, is much more prevalent in the spring

than at other seasons, and the analysis I made forcibly proved the correctness of the observation. Out of the eighty cases which form the basis of the present paper, the attacks occurred in the spring in thirty-nine instances; summer, ten; autumn, seven; winter, twelve; total, sixty-eight. In the twelve remaining cases the point is not mentioned. Thus it will be seen that more than half of the cases in which the point was noted occurred in the spring. It is difficult to offer any explanation for this remarkable preference, unless, as I before suggested, it is due to the enervating weather of the season in question. We all suffer more or less from constitutional depression in the spring, particularly in the early part; indeed the so-called "spring fever" has become with us an almost recognised disorder. I am not aware of any mention having been made of the point as it occurs in connection with chorea in other parts of our country. In Paris, however, according to M. See, the disease is most apt to occur in the autumn, the season which, I think, very closely resembles the spring of Philadelphia in point of temperature and tendency to cause enervation. The disposition of chorea to recur in the spring may also be shown. Thus, out of eighty cases previous attacks were noted in twenty-five, and all but seven of these occurred in the spring. Of the twenty-five cases, fourteen had had one previous attack, eight had had two, and in three instances the patients had suffered from three.

The presence of *partial paralysis* was noted in seventeen cases, the loss of power being confined in ten instances to the right side, and to the left in seven. The frequent occurrence of "choreic hemiplegia" is, as I have already said, a strong argument in favor of the view held by Dr. Jackson in regard to the seat of the lesion of the disease, viz., the convolutions about the corpus striatum.

In this connection I shall call attention to remarks made by Dr. Mitchell at his clinics in regard to the motor manifestations of certain choreas. For several years he has pointed out the existence of peculiarities in these manifestations which may be summed up as follows: Usually choreas begin with the exhibition of mere awkwardness of habitual voluntary acts,